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A Comparative Study of the Business Models and Social Impacts of Shared Mobility in China and Southeast Asia

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Abstract: This study examines the divergent development of shared mobility in Asia through a comparative analysis of China's bicycle-sharing model and Southeast Asia's motorcycle-based ride-hailing model. It investigates their contrasting socio-economic origins, evolving business models, and distinct societal impacts. Utilizing a comparative case study methodology focused on China exemplified by Ofo and Mobike and Southeast Asia represented by Indonesia's Go-Jek, the research draws on secondary data from industry reports and academic literature. Findings reveal the Chinese model, built on mature mobile payments and manufacturing, transitioned from capital-fueled expansion to state-regulated rationalization, grappling with urban spatial conflicts. Conversely, the Southeast Asian model, rooted in local motorcycle culture, evolved into multi-service super-apps, facing core challenges related to platform labor rights. The study concludes that these models are not mere replications of Western prototypes but represent context-dependent adaptive innovations, offering crucial insights into the interplay between digital economies and socio-cultural structures in Asia.

Keywords: sharing economy; Asian models; comparative case study; China; Southeast Asia; Go-Jek

1. Introduction

1.1. Research Background and Problem Statement

The platform-based sharing economy has emerged as a significant socio-economic force globally, giving rise to multinational corporations like Airbnb and Uber in sectors such as accommodation and mobility, and sparking extensive academic debate concerning the future of work, market regulation, and urban governance [1]. However, this global phenomenon manifests through diverse localized pathways across different socio-technical contexts. In Asia, the shared mobility sector did not simply replicate Western models but instead witnessed a distinctive two-wheel revolution: on one hand, Chinese urban spaces were once saturated with colorful shared bicycles, creating the spectacular Rainbow Wars; on the other hand, shared motorcycles bearing unified logos as Go-Jek, GrabBike have become the lifeblood of daily transport and life in the urban fabric of Southeast Asian countries like Indonesia and Vietnam.

This striking regional contrast presents a central academic puzzle: why have two dominant forms of shared mobility, significantly differing in technological medium, business models, and modalities of social embeddedness, evolved within geographically proximate and similarly emerging economies of Asia? This divergence is not merely a matter of contingent business strategy but necessarily reflects a complex co-evolution among deeper socio-economic backgrounds, technological foundations, institutional

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regulatory environments, and local cultural practices. Consequently, a systematic comparative analysis of China's bicycle-centric light-asset model and Southeast Asia's motorcycle-centric heavy-service model can not only reveal the localized logic of the sharing economy in Asia but also provide a theoretically instructive empirical case for understanding the dynamic relationship between technology diffusion and societal adaptation.

1.2. Literature Review and Research Gap

To establish the starting point for this research, we first review and critically assess the relevant academic literature.

Firstly, classical theoretical frameworks of the sharing economy largely originate from analyses of Western contexts [2]. These studies focus on the efficiency of platforms as information intermediaries in reducing transaction costs and activating idle assets, and delve into the regulatory conflicts and labor rights issues they trigger [3]. Although these studies provide essential conceptual tools, their analytical paradigms are often built upon mature market economies, highly individualized social relations, and specific legal traditions, thereby somewhat underestimating the decisive role of state power, unique market environments, and the informal economy in shaping the forms of the sharing economy in Asia.

Secondly, empirical research on shared mobility in Asia has accumulated substantial findings, yet exhibits notable fragmentation and a narrow focus. Regarding Chinese bike-sharing, existing literature has explored it from various angles: some studies analyze its potential impact on urban transportation structure as a green travel mode [4]; others meticulously document its trajectory from capital-driven rampant growth to triggering urban management crises, and subsequently to forceful government intervention and regulation, viewing it as a window into Chinese digital governance [5]. Concerning Southeast Asia, scholars have focused more on the socio-economic impacts of motorcycle-hailing platforms as Go-Jek, particularly their ecosystem construction as super-apps, and their role in shaping gig employment and livelihoods for low-income groups [6].

Although the aforementioned country-specific studies offer valuable partial insights, a critical research gap persists in the existing literature: a lack of systematic, cross-regional comparative research. Most studies focus either on China or on a specific Southeast Asian country, failing to juxtapose and examine these two distinct Asian models within a unified analytical framework. This omission hinders the ability to move beyond case-specific descriptions to distill the key variables and core mechanisms driving the divergence of the sharing economy in Asia, consequently impeding the formation of more general theoretical propositions about an Asian model [7].

1.3. Research Framework and Paper Structure

In response to the research gap identified above, this paper employs a comparative case study approach to investigate the following core questions:

- 1) Under what different socio-economic and technological backgrounds did the shared mobility models in China and Southeast Asia emerge?
- 2) How have the core business models and governance structures of these two models evolved and differentiated?
- 3) What distinct economic and social impacts have they generated on their respective societies, particularly concerning urban transportation, employment patterns, and public space?

Guided by a multi-dimensional analytical framework inspired by Geels' socio-technical systems theory (2004), this research conducts an in-depth analysis and cross-comparison of the cases of China and Southeast Asia [8]. The study relies primarily on publicly available secondary data, including industry reports, academic literature,

government policy documents, and authoritative media reports, to ensure the reliability and verifiability of the evidence [9].

2. Analytical Framework: Key Dimensions Shaping Asian Shared Mobility

To systematically compare the similarities and differences between the shared mobility models in China and Southeast Asia and to delve into the underlying driving mechanisms, this study constructs a multi-dimensional analytical framework. This framework does not aim to propose entirely new theories but rather integrates and applies established concepts from development economics, institutional economics, and business strategy to provide a structured tool for comparative analysis. The framework revolves around the following three interconnected dimensions: (1) Socio-economic and Technological Context; (2) Business Model and Governance Structure; and (3) Social Impact and Externalities. These dimensions collectively constitute the key forces shaping the distinctive" Asian characteristics of specific shared mobility models.

2.1. Dimension 1: Socio-economic and Technological Context

The diffusion and form of any technological innovation are deeply embedded within its specific socio-technical system [10]. The divergence of shared mobility models in Asia stems primarily from the structural differences in their respective environments of implementation. This dimension encompasses the following key sub-dimensions:

Urban Form and Transportation Demand: The high-density, functionally zoned megacities in China fostered a strong demand for solving the "last-mile" transportation connection. In contrast, the prevalent extreme traffic congestion in Southeast Asian cities highlighted the need for fast, flexible commuter tools that could navigate through congestion and serve as a primary mode of transport. This constitutes the fundamental basis for the existence of the two models.

Technological Readiness: China's highly mature mobile payment ecosystem e.g., Alipay, WeChat Pay was an indispensable prerequisite for the scan-and-go model of bike-sharing. Conversely, the lower banking penetration rates in parts of Southeast Asia at the inception of shared mobility spurred the development of platform-embedded e-wallets e.g., Go-Pay, achieving a leapfrog in financial technology and, in turn, reinforcing the stickiness of the platform ecosystem.

Factors of Production and Labor Market: China's strong bicycle manufacturing base and relatively higher labor costs propelled the large-scale deployment of standardized, low-maintenance bikes and unmanned operations. Southeast Asia, meanwhile, possessed a vast existing stock of motorcycles and a large informal labor force seeking flexible employment, providing ample factors of production for the motorcycle-hailing model.

2.2. Dimension 2: Business Model and Governance Structure

Given the contextual conditions, the interaction between corporate strategic choices and the institutional environment shapes the specific business models. Drawing on core elements of Osterwalder and Pigneur's Business Model Canvas (2010), and paying particular attention to the governance role, this study analyzes:

Value Proposition and Core Product: The core value of the Chinese model lies in providing standardized, non-motorized short-distance feeder services; whereas the Southeast Asian model provides motorized, comprehensive mobility solutions, gradually expanding to instant services.

Revenue Model and Capital Drive: This involves analyzing revenue streams like ride fares, platform commissions, advertising, in-ecosystem services, cost structures, and the role of venture capital in driving market expansion and consolidation. The Chinese model's experimentation with financialization via deposit pool and its subsequent shift to a pure service-fee model contrast sharply with the cross-subsidization and ecosystem-based profitability of Southeast Asian super-apps.

Government Regulation and Platform Governance: The institutional environment, particularly the regulatory response of governments, is a key variable shaping the Asian models. After an initial period of observation, local governments in China adopted strong, top-down intervention. In contrast, regulation in Southeast Asian countries often lagged, with governments playing more of a reactive mediator role. Consequently, platforms gained greater autonomy in governance but also faced more societal challenges regarding labor rights and other issues.

2.3. Dimension 3: Social Impact and Externalities

Shared mobility platforms are not only economic entities but also social actors. Their operations lead to both intended and unintended social consequences such as externalities. This dimension aims to assess the different social footprints of the two models:

Employment and the Gig Economy: Comparing the types of jobs created by the two models as bike maintenance vs. motorcycle drivers, working conditions, income stability, and the impact of algorithmic management on workers. This is central to understanding the impact of the platform economy on social stratification.

Utilization of Urban Public Space: The physical asset nature of Chinese bike-sharing led to acute conflicts with urban management, manifesting as the occupation of public spaces like sidewalks and the emergence of bike graveyards. Southeast Asian motorcycle-sharing primarily raises dynamic traffic issues, such as impacts on existing traffic order and increased safety risks.

Social Equity and Inclusiveness: Assessing the accessibility of services across different social groups such as by age, income and digital skills. For instance, does bike-sharing exclude older adults unfamiliar with smartphones? Have the e-wallets associated with motorcycle-sharing promoted financial inclusion?

3. Case Study 1: Chinese Bike-Sharing

The development of Chinese bike-sharing represents a dramatic evolution, initiated by technological empowerment and capital frenzy, progressing through market disorder, and culminating in rational consolidation under forceful government regulation. This section provides an in-depth analysis of this archetypal model through three dimensions: socio-economic context, business model evolution, and social impact.

3.1. Development Context: Technological Empowerment and Capital Indulgence

The explosive growth of the Chinese bike-sharing model was rooted in its unique and mature socio-technical ecosystem.

Firstly, superior mobile internet infrastructure was a prerequisite for its emergence. By the late 2010s, China possessed the world's largest smartphone user base and a highly pervasive mobile payment system such as Alipay and WeChat Pay. This provided a seamless technological foundation for the convenient scan-to-unlock, park-anywhere user experience, addressing the pain points of traditional public bicycle systems that required fixed docking stations and complex registration.

Secondly, the model was powerfully driven by excessive venture capital. Starting around 2016, massive capital, optimistic about the last-mile mobility sector, flooded the market. Leading companies like Ofo and Mobike completed multiple rounds of high-value financing within just a year or two. Public reports indicate that both Mobike and Ofo raised over USD 1 billion each in 2017 alone [11]. The singular focus of capital was on pursuing exponential market share growth rather than short-term profitability, which directly led to a massive oversupply of bicycles flooding city streets, creating the so-called "Rainbow Wars."

Finally, the role of the government during this phase transitioned from observant acquiescence to assertive intervention. In the initial market phase, a regulatory vacuum allowed the model's rampant growth. However, as the tragedy of the commons

manifested through occupied public spaces, traffic congestion, and mountains of discarded bicycles became increasingly acute due to oversupply, municipal governments began implementing strong regulatory measures. These included bans on new bike deployments, setting deployment quotas, and promoting electronic fence technology, profoundly reshaping the industry landscape.

3.2. Business Model Evolution: From Financial Fantasy to Service Return

The business model of Chinese bike-sharing underwent a significant evolution, shifting from a capital-driven logic back to its commercial essence.

The initial phase (circa 2016-2017) saw the business model largely devolve into a financial game. Its core was not merely charging for riding services but was built upon a financial logic centered around deposit pools. Users were required to pay deposits ranging from RMB 99 to 299. As the user base exploded, companies amassed vast, discretionary cash flows used for reinvestment or even financial maneuvering. The unsustainability of this model began to surface in late 2017, culminating in Ofo's deposit run crisis, which fully exposed its financial risks and the ensuing crisis of social trust [12].

In the later phase (2018-present), under the dual pressures of government regulation and market shake-out, the industry's business model was forced to return to its service essence. As deposits came under strict scrutiny and were largely replaced by credit-based deposit-free models, the core revenue source for enterprises shifted decisively to riding fees. Concurrently, to survive and profit, leading companies like Hello, Meituan Bike and Qingju implemented multiple price hikes and shifted their operational focus from extensive expansion to refined operations. This involved using algorithms to optimize vehicle dispatch, enhancing maintenance, and reducing damage to improve bicycle utilization rates and lifecycle. The market structure rapidly consolidated from hundreds of competing firms into an oligopoly dominated by a few internet giants [13].

3.3. Analysis of Social Impact: A Dual Legacy of Convenience and Tragedy of the Commons

The Chinese bike-sharing experiment has left a complex and profound dual legacy for society.

On the positive side, it very effectively addressed the last-mile connection challenge in major cities' public transport systems, becoming a valuable supplement for short urban trips and, to some extent, fostering habits of green mobility. Furthermore, during its boom period, it temporarily created a significant number of manufacturing jobs and offline operation/maintenance positions.

However, its negative externalities were equally pronounced, centering on an intense contestation of urban public space. The massive oversupply of bicycles encroached upon public spaces like sidewalks and bus stops, leading to severe street furniture chaos, threatening pedestrian right-of-way and safety. More strikingly, as the market bubble burst, millions of discarded bicycles formed vast bicycle graveyards on urban fringes, constituting a serious resource waste and environmental burden [14]. This phenomenon stands as a classic example of the negative externalities of the platform economy, where companies effectively transferred the social costs of their operations onto society at large. Ultimately, addressing this market failure required preliminary resolution through forceful government administrative intervention.

4. Case Study 2: Southeast Asian Motorcycle-Hailing

Diverging from the Chinese pathway, the Southeast Asian shared mobility model, utilizing motorcycles as its primary vehicle, has successfully evolved from a tool addressing basic transportation needs into a super-app ecosystem deeply integrated into daily life. This section provides a thorough analysis of this model through the three dimensions of context, model, and impact.

4.1. Development Context: Demand-Driven and Ecosystem Evolution

The rise of motorcycle-hailing in Southeast Asia was a direct response to the region's unique socio-economic realities, achieving leapfrog development on this basis.

Firstly, severe traffic conditions and a deeply ingrained motorcycle culture formed the fundamental basis for its development. Megacities like Bangkok, Jakarta, and Manila have long suffered from some of the world's worst traffic congestion. Motorcycles, due to their flexibility and low cost, were already the primary daily transport for hundreds of millions. Hailing platforms such as Indonesia's Go-Jek and Singapore's Grab did not create new demand but rather digitally integrated and upgraded the existing, vast informal motorcycle taxi driver community and their associated travel demand.

Secondly, a unique digital divide and financial leapfrog provided an opportunity for its model innovation. Unlike China, banking penetration was relatively low in some Southeast Asian nations during the early stages of the platform economy. This perceived "disadvantage" conversely spurred the rapid development of platform-embedded e-wallets like Go-Jek's Go-Pay and Grab's GrabPay. Initially created for convenient ride payment, these e-wallets quickly evolved into independent digital financial services, achieving a financial technology leapfrog enabling users to access digital payments, transfers, and even microloans without needing a traditional bank account, significantly enhancing platform ecosystem stickiness [15].

Finally, the regulatory role of government was relatively lagging and flexible. Initially, governments in the region largely adopted a watchful or relatively tolerant stance towards this new business format, with regulatory framework development noticeably slower than the pace of market innovation. This provided a crucial window for the platforms' rapid expansion and ecosystem building.

4.2. The Super-App Business Model: From Mobility Gateway to Ecosystem Dominance

The defining feature of the Southeast Asian motorcycle-hailing model lies in the evolution of its business model, whose core strategy involves using a single mobility service as an entry point to build an all-encompassing service ecosystem.

The core of this model is leveraging motorcycle-hailing like Go-Ride and GrabBike as a high-frequency, essential traffic gateway. By providing convenient, low-cost mobility services, the platforms rapidly accumulated a massive user base. Subsequently, they utilized this user base to quickly expand service boundaries into ride-hailing, food delivery as Go-Food and GrabFood, digital payments, courier logistics, and even online shopping and digital ticketing.

This platform-as-a-service ecosystem model creates key competitive advantages. Firstly, it enables powerful cross-subsidization and synergies platforms can use traffic from the mobility segment to subsidize the food delivery business, while using the payment service to solidify a closed loop for all services. Secondly, it generates extremely high user stickiness, as users can fulfill multiple needs within a single application, vastly increasing switching costs. The ultimate goal of this model is to establish a form of ecosystem dominance, making the platform the operating system for users' digital lives [16]. Unlike Chinese bike-sharing's reliance primarily on riding fees, Southeast Asian super-apps have highly diversified revenue streams, including mobility commissions, food delivery service fees, payment processing fees, and extensive advertising and partnership income.

4.3. Analysis of Social Impact: Empowerment, Dependence, and Labor Controversies

The social impact of the Southeast Asian motorcycle-hailing model is also dualistic, but its focus differs from the Chinese case.

On the positive side, its most notable contribution lies in creating gig economy employment opportunities on a massive scale. It provided a relatively flexible source of income for millions of individuals being low-skilled workers, acting as a significant socio-

economic stabilizer [17]. Concurrently, its super-app ecosystem greatly convenient urban living, enhanced business efficiency, and promoted financial inclusion through digital payments.

However, its negative externalities are predominantly concentrated at the social level, particularly concerning worker rights and welfare protections. As platform algorithms became more sophisticated, issues related to algorithmic management became increasingly prominent, including stringent requirements for delivery or ride times, opaque dispatch systems, and rating-based penalty mechanisms, placing significant physical and mental strain on drivers and creating job precarity. The core controversy revolves around the labor status of drivers classified as independent partners rather than employees, they are largely excluded from traditional labor protections such as minimum wage, paid sick leave, and social security [18]. This has sparked broad societal debate and localized protests regarding how to redefine and safeguard worker rights in the digital age.

5. Comparative Analysis: Two Pathways of Asian Shared Mobility

In-depth examination of Chinese bike-sharing and Southeast Asian motorcycle-hailing reveals two distinct developmental trajectories within Asia's shared mobility landscape. This chapter conducts systematic comparative analysis and explores theoretical implications through our established framework.

5.1. Systematic Comparison: A Multi-dimensional Perspective

The comparative analysis across key dimensions reveals fundamental divergences, as summarized in table 1.

Table 1. The comparative analysis across key dimensions reveals fundamental divergences.

Dimension	Chinese Bike-sharing	Southeast Asian Motorcycle-hailing
Socio-technical Context - Core Product	Standardized bicycles	Motorcycles & derived services
Socio-technical Context - Technological Foundation	Mobile payments, GPS, smart locks	Mobile payments, platform-embedded e-wallets
Socio-technical Context - Urban Context	High-density cities, last-mile solutions	Congested cities, mainstream transport alternative
Socio-technical Context - Primary Drivers	Capital & technology	Market demand & platform ecology

Business Model & Governance - Value Proposition	Standardized short-distance service	Integrated mobility & instant services
Business Model & Governance - Revenue Model	Service fees (post-deposit phase)	Platform-as-service ecosystem
Business Model & Governance - Regulatory Role	Proactive intervention	Reactive mediation
Business Model & Governance - Market Structure	Oligopoly	Duopoly/Oligopoly
Social Impact - Employment	Limited maintenance jobs	Massive gig economy driver jobs
Social Impact - Key Negative Impact	Public space appropriation	Labor rights concerns
Social Impact - Primary Conflict	Platform vs urban governance	Platform vs labor

5.2. Underlying Drivers and Logic

The divergence reflects profound path dependence and institutional variations:

Path Dependence & Technological Adaptation: China leveraged its manufacturing prowess and digital infrastructure for targeted urban solutions, while Southeast Asia creatively addressed structural gaps in financial inclusion through platform-based digital upgrading of existing motorcycle culture.

Divergent Governance Approaches: Chinese local governments demonstrated strong state capacity through administrative market reshaping, whereas Southeast Asian regulators adopted more reactive governance, granting platforms greater initial autonomy.

Common Asian Characteristics: Both models share mobile-first strategies, significant state influence in market formation, and pragmatic problem-solving approaches prioritizing urgent needs over theoretical purity.

5.3. Theoretical Implications: Beyond Western Narratives

Our analysis challenges homogeneous conceptions of sharing economies:

First, sharing economy manifestations are highly contextualized within local socio-technical regimes, requiring theoretical frameworks that incorporate state roles and informal economies to adequately explain Asian realities [19].

Second, platform capital interacts differently with social structures - confronting public governance in China versus labor directly in Southeast Asia, revealing how platform disruption targets different institutional vulnerabilities.

Finally, both models represent hybrid forms of institutional isomorphism and strategic competition, adapting global concepts to local contexts while generating potentially exportable innovations [20].

5.4. Limitations and Future Research

This study's primary limitation lies in its reliance on secondary data. Future research could employ surveys and interviews for deeper insights into user behavior and driver welfare. Micro-level mechanisms like algorithmic management and pricing strategies warrant further investigation.

Emerging technologies as EVs and autonomous vehicles and evolving regulations will continue transforming Asia's mobility landscape. Future research should track how these changes reshape mobility ecosystems and whether Chinese and Southeast Asian models will further converge or diverge.

6. Conclusion

This study reveals two distinct localized pathways in Asian shared mobility through systematic comparison. China's bike-sharing model represents a supply-side revolution driven by capital and technology, ultimately reshaped by stringent government regulation, with its core tensions manifesting in contested urban public spaces. Conversely, Southeast Asia's motorcycle-hailing model constitutes a demand-side evolution propelled by market needs toward digital ecosystems, raising critical concerns about platform-mediated gig worker rights. Both models demonstrate the power of path dependence, being rooted respectively in China's mature digital infrastructure and manufacturing prowess, and Southeast Asia's established motorcycle culture and initial financial inclusion gaps.

Theoretically, this research challenges homogenized narratives of the sharing economy, demonstrating that localized socio-technical contexts and institutional complexities must be central to understanding Asian innovation dynamics. Practically, it offers crucial policy insights: regulation must be both proactive and targeted, balancing innovation incentives with management of diverse social risks from spatial governance to labor protection.

Ultimately, Asia's shared mobility narrative transcends mere imitation of Western models, presenting instead a compelling case of adaptive innovation and path creation. It powerfully demonstrates how local social structures, market conditions, and institutional forces persistently shape and write their own developmental stories within global technological paradigms.

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